



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,765	12/16/2003	Ram Huggahalli	PI7381	5720
28062	7590	01/17/2006		
BUCKLEY, MASCHOFF, TALWALKAR LLC 5 ELM STREET NEW CANAAN, CT 06840				
			EXAMINER FRANKLIN, RICHARD B	
			ART UNIT 2181	PAPER NUMBER

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED JAN 19 2006

1/19/2006  
706.219  
NON FINAL  
ACTION OFFICE

8

## Office Action Summary

**Application No.**

10/736,765

**Applicant(s)**

HUGGAHALLI ET AL.

**Examiner**

Richard Franklin

**Art Unit**

2181

**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1 – 21 have been examined.

#### ***Specification***

2. The disclosure is objected to because of the following informalities:
  - The abstract is not sufficient because it does not give enough of a description of the present invention.
  - There is no "Brief Summary of the Invention."
  - Requesting agent 210 is referred to as "requesting agent 310" on page 4 line 7 of the specification.

Appropriate correction is required.

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;

Art Unit: 2181

(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

4. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 – 5, and 7 – 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Edirisooriya et al. US Patent Application Publication No. 2004/0128450 (hereinafter Edirisooriya).

As per claims 1, 12, 15, 18, and 20, Edirisooriya teaches receiving from a requesting agent routing information associated with Input Output (I/O) traffic (Figure 2 Item 22); and arranging for the I/O traffic to be transferred directly into a target processors cache in accordance with the routing information (Figure 2 Item 28, Paragraphs [0019] – [0020]).

As per claims 2, 13, 16, 19, and 21, Edirisooriya inherently teaches wherein the routing information is received from an I/O driver executing at the requesting agent because the device (Figures 1 and 4 Items 20a and 20b) sends the push request to the processors (Figure 1 Items 12a – 12c, Figure 4 Items 12d – 12f) and data transfers between computer system CPUs and I/O devices are inherently performed by I/O drivers.

As per claims 3, 14, and 17, Edirisooriya teaches wherein the routing information includes a target processor identifier (Paragraph [0019]).

As per claim 4, Edirisooriya teaches wherein the I/O traffic is associated with a network (Figure 1 Items 16, 20a, and 20b, Figure 4 Items 20a, 20b, and 72, Paragraphs [0013] – [0014], and [0030]).

As per claim 5, Edirisooriya teaches wherein the arranging is performed in multi-processor system (Figure 1 Items 12a – 12c, Figure 4 Items 12d – 12f) that includes a plurality of potential targets (Figure 1 Items 14a – 14c, Figure 4 Items 14d – 14f, Paragraph [0012]).

As per claim 7, Edirisooriya teaches wherein the I/O traffic includes information packets (Paragraph [0033]).

As per claim 8, Edirisooriya teaches wherein the method further comprises receiving the I/O traffic (Paragraph [0033]); and determining whether the I/O traffic should be transferred directly into the target processors cache (Paragraphs [0033] and [0034]).

As per claim 9, Edirisooriya teaches wherein the routing information indicates that one type of I/O traffic should be transferred directly into the target processor cache while another type of I/O traffic should be transferred directly into another target processor cache (Paragraphs [0032] – [0034]).

As per claim 10, Edirisooriya teaches wherein the I/O traffic is received from a peripheral device (Figures 1 and 4 Items 20a and 20b, Paragraph [0013]).

As per claim 11, Edirisooriya inherently teaches wherein the I/O traffic is transferred into the target processors cache in accordance with a chipset's routing function because the interconnection network (Figure 1 Item 16, Figure 4 Item 72) inherently routes data to the processors (Figure 1 Items 12a – 12c, Figure 4 Items 12d – 12f) in accordance with its routing function.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Edirisooriya et al. US Patent Application Publication No. 2004/0128450 (hereinafter

Art Unit: 2181

Edirisooriya) as applied to claims 1 – 5, and 7 – 21 above in view of Chan US Patent No. 6,574,682 (hereinafter Chan).

As per claim 6, Edirisooriya does not explicitly teach wherein the arranging is performed by at least one of a direct memory access (DMA) controller and an I/O controller hub.

Chan teaches wherein data is directly transferred to a cache using a DMA controller (Chan; Col 3 Lines 31 – 35, Col 4 Lines 1 – 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Edirisooriya by that of Chan to include the data transfer through a DMA controller.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Edirisooriya by that of Chan because using a DMA controller allows for the data transfer to take place without the intervention of the processor associated with the cache, which increases system performance (Chan; Col 4 Lines 56 – 59).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Franklin whose telephone number is (571) 272-0669. The examiner can normally be reached on M-F.




Art Unit: 2181

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard Franklin  
Patent Examiner  
Art Unit 2181



**KIM HUYNH**  
**SUPERVISORY PATENT EXAMINER**  
1/8/02

**Notice of References Cited**

Application/Control No.

10/736,765

Applicant(s)/Patent Under  
Reexamination  
HUGGAHALLI ET AL.

Examiner

Richard Franklin

Art Unit

2181

Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,574,682	06-2003	Chan, Stephen H.	710/22
*	B	US-2004/0128450	07-2004	Edirisooriya et al.	711/141
*	C	US-2004/0148473	07-2004	Hughes et al.	711/144
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.